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The Effects of Attack and Retaliation on State Measures of Depression and Hostility: A Replication with the Addition of a Confederate Examiner

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THE EFFECTS OF ATTACK AND RETALIATION ON STATE MEASURES OF DEPRESSION AND HOSTILITY: A REPLICATION WITH THE ADDITION OF A CONFEDERATE EXAMINER

by

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VITA

The author, Carolyn J. Atkinson, was born December 12, 1948 in Kokomo, Indiana. She graduated from Kokomo High School in 1967.

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CHAPTER I

INTRODUCTION

In many therapy situations it has been observed that a patient's expression of anger toward a significant person has seemed to lift his or her depression, at least momentarily (Friedman, 1970).

The dynamic relationship between depression and hostility has been an important focus of clinical investigation since 1911 (Abraham, 1968). However, the development of research instruments to measure depression and hostility as states and traits has only occurred more recently. These kinds of measures have been useful in finding out how affects coexist and interact dynamically in a person.

Research on the dynamics of hostility and depression has shown a wide range of findings on the relationship between these two affects. Although several studies have reported a negative relationship between the two affects (Gershon, Cromer, & Klerman, 1968; Grinker, Miller, Sabshin, Nunn, & Nunnally, 1961; Kendell, 1970), others have reported a positive relationship (Friedman, 1970; Izard, 1972; Weissman, Paykel, Siegel, & Klerman, 1971; Wessman, Ricks, & Tye, 1960). One theory predicting

a negative relationship is the inhibited aggression hypothesis. This theory predicts a negative relationship, with depression resulting from the prevention of the normal expression of aggression.

One laboratory approach in investigating the nature of the relationship between the two affects is to create anger in subjects and then vary the opportunity to express the anger. The inhibition theory would predict that depression should increase in situations where anger is aroused but not expressed. Where the anger is expressed, the depression should decrease. A previous study by the author (Atkinson, 1976) did show that subjects could be angered by a verbal attack. Furthermore, attacked subjects then retaliated with a more negative evaluation of the experimenter than did those subjects receiving an apology. However, those subjects who were not given an opportunity to negatively evaluate the experimenter did not differ in depression or hostility from those who did have the opportunity to retaliate against the insulting experimenter. Additionally, subjects who did negatively evaluate the experimenter reported an increase rather than a decrease or catharsis of hostility.

The present study was proposed to investigate the conditions under which hostility is reduced and/or depression generated. Attacked subjects in the previous study may have reported an increase in hostility and depression in the postmanipulation measurement because

they were still interacting with the experimenter who had attacked them. The present study was designed to create a situation for hostility reduction in subjects by sending them to another experimenter away from the stressful attacker.

Another difficulty in the previous study by the author was the high correlations (rs in .80s) between the depression and hostility check lists. It was questionable whether the subjects were reporting a general arousal of mixed negative feelings or different levels of the discrete affects at any one time. In the present study the additional measurement of another closely related affect, anxiety, allowed another point of triangulation in understanding the high correlations.

Although it would have been desirable to have a validated behavioral measure of depression to accompany the affect check list, the research literature has not reported consistent evidence for such a task. While psychomotor retardation has been a frequently described symptom of depression, the literature has not substantiated the proposition (Beck, 1967). In contrast, anxiety has been found to have a detrimental effect on timed tasks, especially timed, complex ones (Levitt, 1967). There is some evidence that depressives tend to underestimate their performance (Beck, 1967) or the amount of positive feedback they receive (Wener & Rehm, 1975).

Thus, there remains the question of what happens

to depressive affect when subjects report a reduction in their hostility in contrast to those who do not and those who do not have an opportunity to retaliate. There is a need for further exploration for a behavioral measure or correlate of depressive affect.

CHAPTER II

REVIEW OF THE LITERATURE

This review of the literature on depression, hostility and sex effects focuses on the theoretical aspects of each variable which are directly relevant to the other two variables—rather than presenting a comprehensive review of theories of either depression or hostility. After a discussion of some of the basic concepts of depression, the empirical research will be discussed in relation to these variables, the reduction of hostility, and state measures of depression and hostility.

Major Theories of Depression: Basic Concepts

Psychoanalytic

In 1911 Abraham (1968) gave the first explication of depression, predating even Freud's paper on melancholia in 1916. He described the depressive condition as a combination of grief, distress, anger and hostility, feelings of inferiority (loss of self-esteem), guilt, loss of interest, mental and motor inhibition, and fear (especially of losing sexual potency and the ability to give and receive love). Depression is a result of the sexual aims having been frustrated and given up without obtaining

gratification. Abraham saw the basic fixation as being at the oral-sadistic phase since hostility previously attached to the love-object becomes attached to the self through identification. Upon the loss of the love-object this anger becomes both inner- and outer-directed hostility as well as the determinant of depression. The basic conflict in depression, therefore, is caused by a predominance of hatred.

Whereas Abraham saw retroflected (redirected inwardly) hostility as the central force in depression, Freud (1968) pointed to the need to suffer as being the main conflict. This need to suffer is driven by guilt caused by some transgression of the person's primitive moral code or superego. The resulting loss in self-esteem then triggers the inner-directed hostility. Both Abraham and Freud saw the same three conditions as leading to depression—loss of the love-object, ambivalence, and regressive identification of the ego with the abandoned object. The inner-directed blows are still viewed as a reproach for the love-object. However, the main conflict according to Freud's theory takes place with the dissatisfaction of the ego on moral grounds, rather than with hostility furnishing the main drive of depression.

Other psychoanalytic writers have focused on retroflected hostility with some modifications. While depression centers around superego-ego conflict in Freud's theory and around id-ego conflict in Abraham's theory,

Rado (1928) extended the conflict to each of all three systems of id, ego, and superego. His dynamics of depression are closer to Freud's position but repentance is emphasized rather than punishment. Depressive behavior becomes a "cry for love"—an attempt, though misguided, to re-establish the lost love-object. Furthermore, underlying the main drive of repentance, conflicting methods of coercive rage and submissive fear are used to win the love-object. These methods distinguish agitated depressive states (guilty fear), with guilty fear usually lasting longer than coercive rage. The central concern and motivation for the depressed individual, then, lies in one way or another trying to get needed supplies from the lost love-object.

To summarize, all three of these psychoanalytic writers have produced theories of depression where aggression has played a central role in motivating feelings of distress. The basic position of the depressed individual is one of narcissistic loss, and the basic dynamic is that of attempting to get narcissistic supplies from the lost object.

Ego-psychological

Intrapsychic theorists writing from an ego-psychological framework have emphasized the role of fluctuations in self-esteem rather than hostility as being the dynamic handle on depression.

Weiss (1944), for example, regarded depression as a conflict within the ego where an object or goal that is rejected cannot be relinquished. He distinguished a "simple" type of depression from that of the "melancholic" type. In terms of self-experience, the individual who is "simply" depressed feels empty—the ego is "less awake." This subduedness is thought to be caused by Freud's principle of inhibition in response to an unsolvable ego conflict. Weiss saw ego-libido as bound up in the rejected yet unrelinquished love-object or goal. In contrast, the "melancholic" type of depression is a state of increased "ego-feeling" due to self-hatred as a result of an extensive loss of self-esteem from rejection. Thus, aggression as a response to loss of self-esteem is more intense in the "melancholic" than in the "simple" states of depression.

Bibring (1953) has provided the most thorough statement of en ego-psychological theory of depression. In accordance with Weiss, Bibring viewed normal, neurotic, and psychotic depressions as ego-psychological phenomena—an affective state of the ego. Bibring concluded from Weiss's typology that whether the depression was "simple" or "melancholic," the common mechanism is the blow to self-esteem. He thought the the pre-condition for depression was a set of highly charged, persistent aspirations of the ego to be loved, to be strong, and to be good. When the ego is confronted with reality, however, tension then

arises. The ego's awareness of its real and imagined state of helplessness and powerlessness to fulfill its aspirations is emotionally expressed as depression.

While Bibring centered on narcissistic shock as the drive behind depression, he related the dynamics of hostility to depression in three ways: (a) Narcissistic shock is frequently a result of the ego discovering latent aggressive tendencies within itself in spite of the aspiration to be "good." (b) Depression lifts when rage is expressed because rage indicates to the ego that it has power over the object. Therefore the ego need not feel helpless in relation to the object, and thus depressed. (c) When feeling powerful, the ego directs its hostility against the world. When the ego is powerless it surrenders to the superego and accepts punishment.

In summary, Bibring held that depression is an ego-state developing independently of the dynamics of aggression or other drives. Rather than looking to drives, Bibring focused on (a) an investigation of the self-concept, (b) the tensions that arise from the ego's awareness of discrepanices between its ideals and reality, (c) the powerfulness of the ego, and (d) the defense mechanisms (oral-aggressive) which struggle with restitution after the blow to the self-esteem.

In relation to hostility, Bibring would suggest that rage is a possible response to a narcissistic blow when the ego feels in control either in relation to the

object or the superego. However, if another narcissistic blow to the ideal to be good results with the expression of rage or the ego's awareness of latent hostility, then the depression cycle is restarted. Hostility is thus a double-edged sword in that it may convince the ego that it has control over the love-object while it simultaneously defeats a different ego aspiration such as the one to be good.

To relate Bibring's theory to the present study, there are conflicts arising in the ego with "depressive-anger." Anger in response to a narcissistic blow can function in several ways, to bring the object into reach or to relinquish ideals ("It's all right to be angry at this time.") or to punish the self in recycling the depression. The present study was not able to take a longitudinal look at the depression-hostility cycle. Yet in a cross-sectional context, Bibring's theory raises the question as to the relation of hostility to the powerfulness of the ego. In addition to the expression of hostility, the type of hostility becomes important. For example, prosocial aggression would be a way for the ego to exert control over the object while defending against a powerful superego. Bibring's theory would explain why a person who believed that it was always wrong to express aggression might become more rather than less depressed after the expression of hostility.

Some recent theorists have suggested that hostility functions as a mask for depression (Glaser, 1967; Lesse, 1968; Spiegel, 1967). The affect of depression is viewed as a normal response to loss. However, when the ego cannot endure the pain, various responses may be substituted (Sandler & Joffe, 1965). Depending on the personality, the function of anger may be that of a mask against self-knowledge of the oscillation between depression and rage. Other masks of depression include growth failure, hypochondriacal concerns, and antisocial behavior. The affect of depression is thus masked or denied by other behavior. McCranie (1971) has extended this position in the global theoretical stance that all anger is secondary to hurt. Hostility then functions to control, neutralize, or placate the painful stimulus.

Cognitive

In contrast to a motivational model (Abraham) or a defensive theory of depression (Freud), Beck (1967) has delineated a triad of cognitive schema which causes the affective state of depression: (a) the construction of experience in a negative way—interactions are interpreted as representing defeat, deprivation, or disparagement, (b) the view of the self as negative—the self is seen as deficient, inadequate, or unworthy, and (c) the view of the future as negative—life appears full of disappointments and deprivations. These cognitive schema

are then also held responsible for motivational changes characteristic of depression such as paralysis of the will, escapist fantasies, suicide wishes, and intensified dependency wishes.

In brief, the basic cognitive paradigm is that the person first thinks he or she is not good, and then feels depressed. There is no further explanation as to what determines the content of the basic core beliefs other than they are a result of the individual's past experiences.

Sociological

Silverman (1968) reviewed studies on depression and reported on variables found to be correlated with the condition. In looking at the factor of age, she found that depression usually begins in adolescence, increases in young adulthood, peaks in the middle years, and may decline in the later years of life. The diagnosis of "involutional melancholia" has been found to be associated with menopausal age more than with any other diagnostic sign. Many studies have found that depression—whether the feeling of depression, neurotic depression, or depressive psychosis—is more common in females than males. Male suicide rates, however, are higher than those of females. Depressions in females begin to peak when females are in their thirties, and in males when they are in their forties. Depressions in both males and females decrease in the last part of the life span.

Silverman (1968) also reported that marital status is usually found to be independent of depression. In comparison to schizophrenics, depressives tend toward higher marriage rates. There have been consistently more hospital admissions for depression for urban areas than for rural. Most incidences are reported in spring and fall. Depression has not been shown to be consistently directly related to higher income and prestige. Affective diagnoses, though, have occurred more frequently among the lower class and unskilled workers. This finding has been in marked contrast to research on schizophrenia which has found the prevalence of that condition to be inversely related to elevation in social class.

One study (Fromm-Reichmann, 1953) found that families of depressives felt themselves apart from their social milieu in some special way, such as by ethnicity or decline in social position. Silverman (1968) found blacks to be less depressed than whites in the United States, although this proportion may be changing with improvement in treatment facilities for minority populations.

Cohen (1961) has presented a social cohesiveness theory of psychotic depression in contrast to conditions producing schizophrenia:

> Psychotic depression, on the other hand, is generally more frequent among those persons who are more cohesively identified with their families, kin groups, communities, or other significant groupings. Thus, depression predominates among women, who, in most

> cases, are more cohesively identified with their family and group than are men within the same society; in the higher socioeconomic statuses of the social structure; in highly traditionalized and tightly-knit societal groups; among professional people; and, in contemporary Western society, among suburban populations (p. 481).

Gove and Tudor (1973) have provided an analysis of sex-role stress. In studies of 21 communities since World War II, they found more women than men diagnosed as having psychiatric conditions—whether in psychiatric hospitals, outpatient care, or private office practice. They have hypothesized that stress may lead to mental illness in general, and that sex acts as a master status in channeling people into roles. The authors have delineated several ways that the female role in our culture is more susceptible to emotional problems than is the male role. They have shown that most women have been restricted to a single major societal role of housewife, and that this role is relatively unstructured, invisible, and of low prestige. They also found that working wives have appeared to be under a greater strain than have been their working husbands. In general, expectations confronting women have been seen as unclear and diffuse.

Bart (1971) has offered a sociological theory of depression based on role loss. In her research on depressed, middle-aged women she has found depression to be directly related to the amount of maternal over-involvement. Depression is viewed as a response to the loss of that role which

had been the main source for a sense of self. Deykin, Jacobson, Klerman, and Solomon (1966) have labeled this role loss the "empty nest syndrome."

Thus in these sociolcgical theories, depression is seen as a loss of meaning. The structure of the loss is in relation to roles, especially sex roles. While female depressives are frequently reacting to the loss of a love-object, males are often concerned over a failure in a career or a financial matter (Gaylin, 1968).

The various approaches in the theoretical sections above raise the question of whether aggression is primary or secondary to the affect of depression. Psychoanalytic writers have tended to see aggression at the center of the dynamics of depression. Ego-psychological theorists have indicated fluctuations in self-esteem as the primary problem in depression; the function of hostility is to attempt to raise the lowered self-esteem. Cognitive theory includes aggression as only one of several possible outcomes of cognitive patterns. Similarly, sociocultural theorists place aggression as a secondary issue to the main dynamic of loss of meaning or role. The intrapsychic theorists' contributions are based on the dynamics of the individual whereas the sociological writers suggest some dimensions along which sexual differences might be found. Given the theoretical differences in the area of depression, it is necessary to proceed in the next section to the clinical and laboratory research on de-

pression and hostility for additional considerations in relation to this study's hypotheses.

Research on Hostility and Depression

Recent studies of the dynamics of hostility and depression have revealed a variety of relationships between these two affects. Some studies have shown a positive relationship while other research has pointed to a negative one. Comparisons of the results are complicated by differences in types of hostility and depression measures and in subject populations. Another problem is the difficulty in producing depression in the laboratory, as opposed to anxiety, for example. Depression appears to represent a combination of fundamental emotions including both inwardly- and outwardly-directed anger (Izard, 1972).

A negative relationship between depression and outward hostility was reported by Grinker, Miller, Sabshin, Nunn, and Nunnally (1961). The authors studied 96 hospitalized patients diagnosed as depressives upon admission to a psychiatric hospital. Patients were interviewed and rated on a feelings and concerns check list by residents. After five days on the ward, the patients were then rated on a current behavior check list. Depressed patients with high outwardly expressed hostility (shouting, cursing, unappreciativeness) reported less feeling of depressive affect than did the non-outwardly hostile patients. The

non-outwardly hostile patients focused more on feelings of guilt and hopelessness.

A similar relationship was found by Gershon, Cromer, and Klerman (1968) based on a very small sample. Six female inpatients with moderate to severe depressions were studied. The measure for depression was Hamilton's Depressed Symptom Scale. Gottschalk, Gleser, and Springer's (1963) free association technique was the hostility measure. Over a period of 10 weeks, correlations between hostility in general and depression remained near zero for the group as a whole. For two of the patients with hysterical tendencies, however, high hostility-out was associated with less depressed verbalizations though depressive symptoms remained the same. The authors speculated that depression and hostility might be alternating states of awareness.[1]

Kendell (1970) investigated the inhibited aggression hypothesis of depression in his review of studies of different cultures. His essential proposition was that depression results when the normal expression of aggression is prevented. He therefore looked for studies which would indicate whether or not people with few outlets

[1]Cherry and Cherry (1973) reported the use of an "antidepression room" in an Alabama hospital by two researchers, E. S. Taulbee and H. W. Wright. A depressed patient is taken to the room and verbally insulted until he or she expresses some anger. The patient then receives an immediate apology and may leave the room. Further information about this study has been requested.

for aggression would have a higher incidence of depression than would people with many outlets. He did find several community studies which were compatible with his hypothesis. There was a general inverse relationship between homicide and suicide rates for several countries. Other evidence related to social class and ethnicity was more equivocal. While he concluded that there were other plausible explanations for the epidemiology of depression, the single assumption of inhibition of aggression did account for much of the data.

Other studies have found a positive relationship between hostility and depression. Wessman, Ricks, and Tye (1960) administered the Rosenzweig Picture-Frustration Test to 14 female college students to collect daily measurements of intropunitive, extrapunitive and impunitive hostility over a period of six weeks. Subjects also rated themselves on a 10-point scale for depressive mood. Subjects were found to be more generally punitive and significantly more extrapunitive on depressed than on non-depressed days.

Weissman, Paykel, Siegel, and Klerman (1971) studied 40 depressed female outpatients and 40 nonsymptomatic females. Depression diagnoses were made by a psychiatrist when patients were judged to be at least moderately depressed. The Social Adjustment Scale and interviews with subjects about their social roles were

given. The authors found that depressed women's conflicts with their children contrasted to a marked degree with the generally conflict-free parent-child relationships of the normal families. They also found that the intensity of hostile feelings increased with the degree of intimacy of the relationship. Deykin, Jacobson, Klerman, and Solomon (1966) reported similar findings of both overt and latent conflict for 16 depressed mothers in the relationship with their children who had recently left home.

Friedman (1970) studied 213 depressed inpatients who had been diagnosed by two independent raters. The Buss-Durkee Inventory and the Clyde Mood Scale provided the weekly measurements of hostility and depression over a seven-week period. In comparison to matched normal and inpatient controls, depressives tended to be less verbally hostile and significantly more resentful (outward-hostility) than controls. However, this inverse relationship between hostility and depression was reversed as these patients improved. As they became less depressed, they expressed even less verbal hostility. While the subjects' other forms of expressed hostility tended to approach the norm, the types of hostility intercorrelated positively.

Izard (1972) had several large groups of high school and college students write brief descriptions

of a situation which had made them depressed. He then had them fill out his adjective check list as to how they had felt in the situation. Both factors of inward- and outward-hostility were elevated, occurring second or third in the rank order of 10 factors. When subjects filled out the check lists after imagining an anxiety situation, inward- and outward-hostility ranked low at about eighth and ninth.

From the above studies it is obvious that the relationship between hostility and depression requires further study in order to understand the conditions determining the dynamics. The hypothesis of the present study is that of an inverse relationship between hostility and depression in response to attack.

Sex Differences

The research literature has provided several different approaches to the problem of explaining sex differences in depression and hostility. Bennet and Cohen (1959) conducted an attitude survey of normal adults and found that women feel a greater controlled rage than men. This rage includes less overt aggressiveness and more covert hostility for women than for men. The authors assumed this difference to be related to their finding that women are more oriented towards the environment for direction, rewards, and punishments. Nevertheless, masculine and feminine thinking were found to be very similar despite

the above divergences.

Another type of hostility variance for males and females was reported by Garai (1970). His review of the literature indicated that females tend to express their aggression through verbal behavior. Physical aggression is more common in males. Additionally, female aggression tends to be "prosocial"—such as the use of disapproval or physical punishment for discipline. Male aggression tends toward more destructive antisocial behavior. Phillips's (1969) review of the literature found behavior styles of men much more likely to reflect a destructive hostility toward others, while women tended to be more self-critical and self-depriving.

Males have tended to show more aggression than females in the laboratory unless there has been an attempt to condition hostile responses. For example, Buss (1961) set up a "conceptual learning experiment" where subjects were to shock a confederate for errors in problem solving. The confederates were programmed to make many errors, creating a situation where subject-teachers were expected to shock them. Male subjects shocked more and at higher levels than did females. Another example is provided by Gilley and Summers (1970) who found that male subjects used more hostile adjectives than did female subjects in a sentence building task.

Another variable important to the exploration of sex differences in depression is that of self-esteem.

Rosenkrantz, Vogel, Bee, Broverman, and Broverman (1968) administered a sex-role stereotype questionnaire to 74 male and female college students. The results indicated that both women and men evaluated feminine characteristics less favorably than the masculine characteristics. There was also strong agreement between men and women about the differences between masculine and feminine stereotypes. Garai (1970) also reported the finding that women are more likely to possess a negative self-image than men.

Plutchik, Platman, and Fieve (1969) found that depressed patients in remission associated their description of their "remembered depressed state" with their description of "least liked self." The investigators also reported that self-rated hostility, anxiety, and depression were found to appear together in the patients' self-ratings. Bart (in press) studied middle-aged women, psychiatrically hospitalized for the first time. When shown pictures portraying women throughout the life cycle, most of the women least liked the picture of an angry woman.

Simkins (1961) found male subjects displayed more irritation than females in response to being arbitrarily berated for a laboratory performance. Female subjects showed more emotional behavior--some accused the experimenter or made excuses, some threatened to leave the experiment. The experiment included insulting or complimenting subjects on their performances, and then had them complete a sentence building task which offered a

choice of hostile or neutral words. Female subjects were more sensitive to the conditioning process. When insulted, female subjects used more hostile verbs than did male subjects. When complimented, female subjects used less hostile verbs than did male subjects.

To summarize, women appear to report lower self-esteem and more inwardly-directed anger than do men. The hypothesis of the present study is that females show less hostility than do males in response to attack and, concomitantly, become more depressed than do males.

The Present Study

In order to look at the inhibition of aggression theory of depression, it is necessary to find out what happens when aggression is stimulated yet not expressed. Studies have investigated the effect of attack on hostility or on the loss of self-esteem but not on state depression. Research on depression has tended to study the dynamics of clinical populations who were already depressed. The present study was an attempt to study depression in the laboratory in order to investigate some of the causal factors in fluctuations of the affect in normal subjects.

Stimulation and Reduction of Anger

One way of approaching the problem of studying the effect of unexpressed hostility is to stimulate anger and then vary the opportunity for its expression. Thus,

the goal of the present experiment was to create anger in subjects without causing any unnecessary pain or harm to them. Of the several methods found to cause anger in the laboratory, the methods of delay and verbal attack were chosen for their effectiveness and lack of harmful aftereffects. The method of delay consists of merely keeping the subject waiting. Subject frustration occurs when the wait is explained as being arbitrarily caused (Doob & Sears, 1939; Pastore, 1952). However, the use of delay alone does not necessarily help subjects to direct their aggression toward the negligent individual who reportedly caused the prolonged inconvenience (Holmes, 1972).

Buss (1961) reviewed various methods of producing aggression in subjects. He found that the most effective verbal procedure was a personalized, intense derogatory attack delivered by a peer of the subject, or by a person not too discrepant in status from the subject. He felt the "realistic" laboratory situation of an actual attack to be necessary due to the subjects' company manners and desire to please the experimenter. A personalized, intense attack on subjects was chosen in order to create a more hostile situation with a target than would the use of delay alone.

In order to see what happens when anger is expressed, it is useful to provide specific channels for the hostility. An indirect behavioral measure of retaliation that was

successfully used by Bramel, Taub, and Blum (1968) is an evaluation of the experimenter form that is filled out by the subject after the delay and attack. The form offers the subject a chance to appropriately negatively evaluate the experimenter. Since the subject is told that the form's results are to be placed in the experimenter's permanent file, the form also provides the opportunity for the expression of instrumental aggression.

In the previous study by the author, the Experimenter Evaluation Form was given to one half of the subjects. This form identified the experimenter as a graduate student in clinical psychology. Subjects were also told that a summary of the responses obtained from the form were to be placed in the experimenter's permanent file. While the attacked subjects evaluated the experimenter significantly more negatively than did the subjects receiving an apology, there was no subsequent reduction of negative affect for either condition.

In an attempt to obtain a reduction in hostility, the present study both lowered the experimenter's status and allowed the subject to escape from the attacking experimenter. In this study the experimenter and the Experimenter Evaluation Form identified the experimenter as a student working for a grade in a course, rather than as a graduate student in clinical psychology whose evaluation would be placed in her permanent file. This change in the manipulation was based on Buss's (1961) review as

noted above, which indicated that attack by a peer was more effective in stimulating aggression than attack by someone more discrepant in status.

Additionally, in order facilitate a reduction in hostility in this study, subjects were allowed to leave the stressful situation of the attacking experimenter. All subjects were told to finish with another person down the hall and away from the experimenter.

Negative Affect and Task Performance

Several studies have researched the effects of negative affect with more behavioral measures such as performance scores on cognitive tasks. More specifically, some studies have manipulated the opportunities for the expression of hostility in order to study behavioral changes as measured on a cognitive task. For example, Horwitz (1963) varied the opportunities for the expression of hostility and measured the effect on a memory task. Subjects were angered by arbitrary behavior of an instructor who refused to follow his own rules that he had set up for his students. A continuum of subject groups was arranged so that one group was encouraged to confront the authority figure directly. In another group subjects were asked to express their anger by verbal means only. Another group was to suppress any outward signs of hostility. The last one was to replace any negative thoughts about the instructor with only positive ones. The groups'

subsequent performances on the WAIS Digit Span Backwards and a rigidity test showed that the greater the inhibition in the instructional set, the greater the cognitive inefficiency.

Another group study of direct and indirect expression of hostility was reported by Worchel (1957). The experimenter insulted his groups by making negative remarks to subjects while they struggled with an impossible, bogus intelligence test. Subsequently, one group was then asked directly by the experimenter how they had felt about the test and its administration. In another group, a confederate assistant elicited information from the group while the experimenter was away. A third group was encouraged to discuss the issue of student unrest on the campus. A fourth group was assigned a neutral topic for discussion. A fifth group heard a lecture. The results were that the second and third groups expressed the most hostility. The groups then completed a digit-symbol task and one of incidental recall. The digit symbol scores and incidental recall were higher for those in the first three groups than for those in the last two groups.

Research on the effect of anxiety on cognitive performance has been reviewed by Levitt (1967). High anxious subjects have been found to do worse on timed WAIS subtests than low anxious subjects. In communication experiments, comprehension has been found to be less

when the content of messages is anxiety producing. Subject anxiety has appeared to favor response stereotypy, while having a negative effect on more complex task performance.

Although clinical descriptions of depressive affect have emphasized psychomotor and cognitive retardation, Beck's (1967) review of the literature concluded that there was contradictory evidence for the retardation proposition. Depressed subjects have been found to underestimate the amount of positive feedback that they have received on a cognitive task (Wener & Rehm, 1975).

While various studies have shown the effect of hostility, depression, and especially anxiety, on cognitive tasks, only one of these affect measures has been included in any one study. In order to include a behavioral measure of the effect of negative affect, a cognitive task was presented to subjects in the current study after they finished the negative evaluation and posttest affect forms. Since the present study included measurements of all three negative affects, the cognitive task performance may be found to be correlated with all three posttest measurements.

The task selected was one unfamiliar to most subjects in order to facilitate subjective performance predictions by subjects. The experimental task was that of tracing over all the lines of various diagrams without tracing over any of the lines twice, and without lifting

the pencil from the figure within a time limit. This task was administered and timed by the confederate experimenter after the subject had completed the posttest affect forms. Subjects were asked for their subjective evaluations as to how well they performed in comparison to other students both before and after the task.

State Measures of Depression, Hostility, and Anxiety

In selecting a measure for state depression, it was necessary to find an instrument sensitive to expermental manipulation. The measure also needed to be a valid measure of depressive affect rather than a composite indicator of negative affect. Although the Depression Scale of the Multiple Affect Adjective Check List is sensitive to experimental manipulation, its intercorrelation was the Hostility Scale has been as high as their reliabilities (Zuckerman & Lubin, 1965). Izard's Depression Scale (1972) provided sparse validation. Lubin's Depression Adjective Check Lists (1967) were chosen as the most psychometrically sound measure of depression state available.

Lubin (1967) began with a pool of items connoting a range of depressed and elated feeling. These items were then given to criterion groups of both female and male psychiatric patients rated severely depressed, and also to normal females and males. Items which differentiated the depressed and normal groups were then divided

into balanced lists for each sex since there were differences in the items that differentiated males and females. Each of four female lists contained 22 positive adjectives and 10 negatively scored adjectives. Each of three male lists consisted of 22 positive adjectives and 12 negatively scored adjectives. Lubin reported that the split-half reliabilities for the lists ranged between .82 and .93 for normals, and between .86 and .93 for patients with higher reliabilities for females. Crossvalidation was performed by administering the lists to new groups of psychiatric patients of both sexes who were rated as depressed. Again the lists distinguished this group from that of normal subjects.

There are even more problems reported in measuring state hostility than in state depression measurement. Saklofske (1971) reported the difficulty in measuring direction of hostility by check lists consisting of single, descriptive adjectives of mood. Izard (1972) presented an inward/outward hostility analysis for his check list but actually only separated the outwardly directed adjectives from the rest of the adjective list. Saklofske recommended that sentence building tests be used to measure direction of hostility rather than adjective check lists. Sentence building tests have been effectively used to measure projected hostility. The Gottschalk free association scales appear to measure state changes as well as direction of hostility but would be difficult to

administer in the context of an insult condition.

The Hostility Scale of the Multiple Affect Adjective Check List was chosen for the state hostility measure. However, the Hostility Scale has been found to be highly correlated with the Multiple Affect Adjective Check List Depression Scale—ranging from .62 for female psychiatric patients to .72 for college males and females (Zuckerman & Lubin, 1965). Correlations with the Depression Adjective Check Lists were not listed in the Lubin manual (1967). Internal reliability (odd vs. even items) was .90 for the Hostility Scale for 46 college students. There was a significant relationship between observed hostility of patients and Hostility Scale scores. The relationship was most discriminating for those patients rated as highly hostile at the upper end of the rating scale. Retest reliability for a seven-day interval for a group of college students was .15. For 50 psychiatric patients, retest reliability after an eight-day interval was .84. The scale was found to correlate .67 with the Buss-Durkee Inventory for normals, .03 for patients (Zuckerman & Lubin, 1966).

A measure of state anxiety, Spielberger's State Anxiety Inventory, was added to the state depression and hostility measures in the present study to see if anxiety would correlate just as highly as did depression and hostility in the first study (Atkinson, 1976). Spielberger developed the Anxiety Inventory by selecting items

from previously existing anxiety scales. These adjectives were administered to college students under various stress conditions such as taking a difficult intelligence test or observing an upsetting movie. Those items which best differentiated subjects in the stress versus the control conditions were selected for the final 20-item inventory. Internal consistency (alpha) reliabilities were in the .80s and .90s for the student sample (Spielberger, 1968). The test manual also reported evidence of concurrent validity by correlations between .52 for males and .72 for females with the Zuckerman Anxiety Scale. When subjects were told they would be taking the exam, their group's anxiety scores were significantly higher than those of a control group. Anxiety scores were also significantly lower in groups given relaxation instructions than those of a control group. Almost all of the items discriminated significantly between the relax versus the examination conditions. The manual reported additional studies where the State-Trait Anxiety Inventory scores were highly correlated with experimental stress conditions.

Hypotheses and Overview of Design

In order to look at the dynamic relationship between hostility and depression, the present experimental study was designed to explore the following hypotheses:

(1) Hostility decreases after being expressed through retaliation against the aggressor.

(2) An increase in unexpressed hostility in response to attack is accompanied by an increase in depression. Conversely, an increase in expressed hostility in response to attack is accompanied by a decrease in depression.

(3) Males express more hostility and less depression in response to attack than do females.

(4) An increase in unexpressed hostility is accompanied by a decrease in cognitive task performance.

The first goal of the present study was to create anger in subjects. All subjects were delayed for 25 minutes. One-half were then blamed for having waited without informing the experimenter. To control for the effect of delay, the other half of the subjects were given an apologetic explanation about the wait.

The second goal was to create a situation where subjects given an opportunity to retaliate could be compared to subjects not given an opportunity to retaliate. Subjects were sent to a confederate experimenter before filling out the posttest forms in order to remove them from the stressing experimenter. The retaliation procedure was for the subject to evaluate the experimenter. One-half of each of the above groups (attack and apology) were given the opportunity to evaluate the delaying experimenter.

These two manipulations and controls were then crossed, resulting in four experimental conditions in a 2 X 2 X 2 design—i.e., apology conditions with and without

opportunity to retaliate and attack conditions with and without opportunity to retaliate. In order to test the sex of subject hypotheses, 10 males and 10 females were randomly assigned to each of the conditions.

Given the hypotheses of this study, it was predicted that the attacked subjects with an opportunity to retaliate would be less hostile and less depressed than attacked subjects without an opportunity to retaliate. Furthermore, attacked males without an opportunity to retaliate would be most hostile. Attacked females without an opportunity to retaliate were predicted to become most depressed.

Subjects' performance scores on the cognitive task following the posttest adjective forms were predicted to be related to the experimental conditions. Attacked, no retaliation opportunity subjects were expected to do least well. Subjects receiving an apology with an opportunity for retaliation were expected to produce the best scores.

CHAPTER III

METHOD

Subjects

Subjects consisted of equal numbers of female and male volunteers from the introductory psychology class subject pool at Loyola. Of the 91 subjects, 8 subjects thought that the experimenter might have been trying to anger them. Two subjects guessed that the experimenter had only been acting. Two additional subjects did not fill out a complete set of forms. These 12 subjects were eliminated from the analysis. Since one of the two subjects with an incomplete set of data was not discovered until the data were scored, the male-apology-retaliation cell was short one subject. Except for this cell there were 10 females and 10 males in each of the four cells of the design.

Instruments

Affect Rating Scale. This scale provided state measures of hostility, depression, and anxiety both before and after the experimental manipulation. The state hostility measure consisted of 19 adjectives from the Hostility Scale of the Multiple Affect Adjective Check

List. Each of the hostile adjectives was rated on a scale from "1" ("not at all") to "4" ("very much so") for a possible range in state hostility scores from a minimum of 19 to a maximum of 76. An additional 7 outwardly-directed items were included from Izard's Check List to look at outward hostility. Two adjectives descriptive of "joy" were added to made the areas of hostility, depression, and anxiety less salient for the subjects.

The 19-item state depression measure consisted of adjectives from the depression scales of Lubin's Depression Adjective Check Lists. Adjectives from Lubin's Form A were used for the female subjects' pretest measurement and adjectives from Form B were used for the posttest measurement. Adjectives from Form E comprised the first measurement for the male subjects and Form F for the second (see Appendix A). As above, each adjective was rated from a minimum of "1" to a maximum of "4" producing the same possible range of state scores.

Seventeen items drawn from the Spielberger Anxiety State Scale formed the state anxiety measure. These items were rated by subjects in the same format which yielded a possible range in state anxiety scores from a minimum of 17 to a maximum of 68. All the items from each of the affect scales and from the outward hostility scale were intermixed together for the Affect Rating Scales (Appendix A).

Personality Inventory. This scale consisted of 18 items from the Eysenck Personality Inventory (see Appendix A). This measure was not scored since the only purpose was to occupy the subjects during the first few moments of the 25-minute delay.

Descriptive Mood Form. This form consisted of bipolar continua for nine adjectives. The purpose of this measure was to provide some variation in mood measurement before the repeated posttest measurement of the Affect Rating Scale (see Appendix A). This form was not scored.

Experimenter Evaluation Form. This form gave subjects the opportunity to evaluate the experimenter (presented as a student conducting research for credit in a course) along each of five different continua ranging from "very negatively" to "very positively." Each continuum consisted of a line 5 inches long marked off into 10 sections (see Appendix A). For scoring, the sections were assigned values from a minimum of 1 at the very positive end of each continuum (e.g., "very competent") through to a maximum of 10 at the very negative end of the continuum (e.g., "very incompetent"). The minimum possible total score for the entire form was thus 5, and the possible maximum score was 50. At the end of the form was the instruction for subjects to then seal the evaluation in an envelope addressed to the Department of Psychology.

Maze Puzzles. After being sent to the confederate experimenter, the subjects were asked to complete nine maze puzzles (see Appendix B). Subjects were told that they must trace over all the lines without going over any lines twice or lifting the pencil from the paper. A total of completed, correct designs constituted the total correct score for each subject.

Procedure

The subjects were tested individually in separate rooms. Each subject was greeted by the experimenter, the author, with a brief "Hello" and led through a long corridor. Books, papers, or other materials carried by the subject were placed in one room, and the subject was seated at a desk in another room. The experimenter then gave the following instructions for the Affect Rating Scale Form:

> This is a personality research inventory for you to fill out. We are interested in establishing the reliability and validity of these self-report inventories for research purposes. Read each item carefully and then mark the first response that you think of. It's important that you fill out the pages in the order that you receive them. All your answers will be kept confidential. Go ahead and begin.

The experimenter then left quickly. After 5 minutes or when the subject had finished, the form was removed. The short Personality Inventory was then left with the subject. For the next 25 minutes the experi-

menter was difficult to find for any communication. Any subject who attempted to leave the room or to talk to the experimenter was told to just wait in the room.

After the delay time had elapsed, the experimenter brought the final set of forms including the Descriptive Mood Form, the Experimenter's Evaluation Form (in the two retaliation conditions only), and the Affect Rating Scale. This last set of forms was introduced in the attack condition by the experimenter rushing into the room and accusing the subject as follows:

> Why didn't you bring me your forms?! I forgot all about you and now you've messed up the timing of my experiment—I've got another subject to do. Do you freshmen have to be led around by the hand?!
>
> I've already looked over your other form. This time read the questions first. I can't bother with finishing with you now. Fill out these forms and finish up with the girl in room 1036. Take the forms with you and get going. (The experimenter exits before the subject can object.)

For the apologetic conditions, the experimenter entered the room and said:

> I'm really sorry that I've had to keep you waiting. I've been anxiously waiting for the secretaries to finish running off my questionnaires—they've had trouble getting the mimeograph machine to run right. I appreciate your waiting—you've been very patient.
>
> Here is the last set of forms that you will need to fill out. Could you please finish up with the girl in room 1036? She will finish up with you, and I'll go and catch up with the others who have had to wait. Thanks again for waiting.

The subject then filled out the forms in the presence of the confederate experimenter. Subjects in the two retaliation conditions filled out all three forms, whereas the other two conditions just filled out the Mood Form and the Affect Rating Scale. The confederate experimenter was occupied in some way, such as reading a book. She was noncommittal about the first experimenter and simply listened if the subject mentioned something about the experimenter. The confederate experimenter then said:

> O.K. I'm collecting the finished forms. Well, that ends the study for that other girl. There's just one more part for you to do. I have a test here that a professor would like to have validated—it's not really part of the inventory study that you just did, but the professor has asked that you help him out as part of your two credits for the other study. O.K.?
>
> These puzzles here are supposed to be a measure of a person's creative problem solving ability and an indirect measure of intelligence. You are supposed to trace within all the lines, or channels, of these nine diagrams without retracing along any line again and without lifting the pen from the figure. It is fine if you cross lines but do not trace along over a line you've already drawn. If you make a mistake you must start again on another copy of the puzzle. You can use as many sheets as you need for each design. You may go on to the next one if you can't solve one, but try to solve as many as you can as quickly as you can.
>
> First, though, could you estimate for us how well you think you'll do in comparison to other students here? (The confederate experimenter hands the subject the rating continuum.) (See Appendix B)

The confederate then had the subject proceed with the designs. Each design was timed and work on the designs was halted after 10 minutes. The subject again completed the rating continuum, this time comparing how

well she or he thought her or his performance compared to other Loyola students (see Appendix B). The confederate then collected the rating sheet and designs, and sent the subject back to the experimenter for debriefing (see Appendix C).

CHAPTER IV

RESULTS

Adequacy of Manipulations

The first objective was to produce anger in subjects by verbal attack. There were two delay-attack conditions to compare with two delay-apology conditions. Hostility measurements were provided by the adjective rating scales completed by subjects both before and after the experimental manipulations. Since both pretest and posttest scores were obtained, a covariate analysis was done using posttest scores as the variate and pretest scores as the covariate. The purpose of the covariate analysis was to remove the effect of the covariate (pretest) on the variate (posttest) as the covariate was not affected by the treatment manipulation. A test of the homogeneity of within cell regression coefficients showed that the assumption of linear regression was probably correct, and, thus, that the covariate analysis was appropriate ($p > .43$ that the cell coefficients were homogeneous). The posttest cell means were then adjusted for the effect of the pretest means. In order to look at the effect of the manipulations upon hostility, the adjusted means for

subjects in the attack conditions were compared to subject's adjusted mean scores in the apology conditions. Table 1 shows the estimated means for the state hostility scores.

A 2 X 2 X 2 analysis of covariance of the above data is summarized in Table 2. The first factor, that of the attack and apology conditions, provided a manipulation check. The analysis of covariance revealed that indeed, attacked subjects did become significantly more hostile, F (1, 70) = 13.54, $p < .001$, than subjects in the apology conditions.

Another experimental manipulation was the use of the Experimenter Evaluation Form. The purpose of this form was to provide half of the subjects with a channel for instrumental aggression and/ or expression of hostility against the experimenter. The manipulation expectation was that attacked subjects would retaliate more against the experimenter than would subjects receiving an apology. Therefore, attacked subjects were predicted to have given significantly more negative evaluation scores than did subjects in the apology condition. Table 3 shows the means and standard deviations for the negative evaluation scores of the experimenter. A 2 X 2 analysis of variance (Table 4) showed a significant main effect for the variable (A) of the attack condition versus the apology condition. Attacked subjects did evaluate the experimenter significantly more negatively than did subjects receiving

TABLE 1

Estimated Mean Scores for Posttest State Hostility (Variate) Adjusted for Pretest State Hostility (Covariate)

Sex of Subject	Retaliation Possibility	Condition		
		Attack	Apology	Total
Female	Present	41.17	30.25	71.42
	Absent	40.98	36.53	77.51
Male	Present	36.62	32.85	69.47
	Absent	47.28	33.20	80.48
	Total	166.05	132.83	

Note. N = 10 per cell except in the male-retaliation-apology cell, where N = 9. There is no separate standard deviation for each cell because the estimation of means creates only one standard deviation for the whole set of means.

TABLE 2

Summary of Analysis of Covariance: Posttest State Hostility (Variate) and Pretest State Hostility (Covariate) (N= 79)

Source	df	MS	F
Attack/Apology (A)	1	1353.12	13.54*
Retaliation opportunity (B)	1	359.34	3.60†
Sex of Subject (C)	1	.85	<1
AB	1	16.81	<1
AC	1	8.52	<1
BC	1	32.36	<1
ABC	1	334.22	3.34†
Within cell	70	99.95	

†$p < .08$

*$p < .001$

TABLE 3

Mean Scores for Negative

Evaluation of Experimenter

Sex of Subject	Condition	Attack	Apology		Total
Female	M	29.50	M	13.60	43.10
	SD	7.97	SD	3.38	
Male	M	33.10	M	13.56	46.66
	SD	8.67	SD	5.09	
Total		62.60		27.16	

Note. N = 10 per cell.

TABLE 4

Summary of Analysis of Variance:

Negative Evaluation Scores of Experimenter (N= 39)

Source	df	MS	F
Attack/Apology (A)	1	3,064.74	63.49*
Sex of Subject (B)	1	31.04	< 1
AB	1	32.11	< 1
Within cell	35	48.27	

*p < .001

an apology, F (1, 35) = 63.49, $p < .001$.

Retaliation Opportunity and Reduction of Hostility

The first hypothesis was that hostility would decrease after being expressed through retaliation against the aggressor. It was predicted that subjects given an opportunity to retaliate would show less state hostility at the posttest measurement than would subjects who were not given an opportunity to retaliate against the experimenter. To test this hypothesis, the variable of retaliation opportunity was included in a three-way analysis of covariance as Variable B. Table 1 shows the adjusted means for the state hostility scores. The summary of the results of this analysis of covariance are shown in Table 2. The variable of retaliation opportunity did not yield a significant F value for the criterion of state hostility. However, there was a trend, F (1, 70) = 3.60, $p < .08$, for subjects who were given an opportunity to retaliate to be less hostile than subjects not given an opportunity.

Retaliation Opportunity and Depression

The second hypothesis was that unexpressed hostility in response to attack would be accompanied by an increase in depression. Accordingly, it was expected that subjects given an opportunity to retaliate would be less depressed than those subjects not given the retaliation

opportunity. The criterion measure forthis hypothesis was the estimated posttest depression scores since both the pretest and posttest scores were obtained. As in the case of the hostility scores, the test of the homogeneity of within cell regression coefficients showed that the assumption of linear regression was probably correct ($p > .57$ that the cell coefficients were homogeneous). Table 5 shows the estimated mean scores for posttest state depression adjusted for the pretest depression scores. A three-way analysis of covariance for the scores was done with the condition of retaliation opportunity as Variable B. Table 6 includes the summary of this analysis of covariance. The retaliation opportunity did produce a significant F value, F (1, 70) = 4.45, $p < .05$. Subjects who had a chance to retaliate were significantly less depressed than subjects without an opportunity to retaliate.

Sex of Subject

The third hypothesis was that male subjects would report more hostility and less depression in response to attack than would female subjects. To look at the first part of this hypothesis, adjusted posttest hostility scores of male subjects were compared with those of female subjects for the attack conditions as well as the apology conditions (Table 1). However, the three-way analysis of covariance summarized in Table 2, revealed that sex of

TABLE 5

Estimated Mean Scores for Posttest State Depression (Variate) Adjusted for Pretest State Depression (Covariate)

Sex of Subject	Retaliation Possibility	Condition		
		Attack	Apology	Total
Female	Present	34.65	34.14	68.79
	Absent	37.99	35.56	73.55
Male	Present	31.47	31.80	63.27
	Absent	40.88	31.17	72.05
	Total	144.99	132.67	

Note. N = 10 per cell except in the male-retaliation-apology cell, where N = 9. There is no separate standard deviation for each cell because the estimation of means creates only one standard deviation for the whole set of means.

TABLE 6

Summary of Analysis of Covariance:
Posttest State Depression (Variate) and
Pretest State Hostility (Covariate) (N= 79)

Source	df	MS	F
Attack/Apology (A)	1	182.34	3.60†
Retaliation opportunity (B)	1	225.36	4.45*
Sex of Subject (C)	1	61.58	1.22
AB	1	170.41	3.37†
AC	1	49.91	< 1
BC	1	21.01	< 1
ABC	1	81.36	1.61
Within cell	70	50.60	

*$p < .05$

†$p < .08$

subject (C) was not a significant source of variance for state hostility. Overall, male subjects did not express significantly more hostility than did female subjects. There was a trend, F (1, 70) = 3.34, $p < .08$, for a three-way interaction effect as male subjects who were attacked and did not have an opportunity to retaliate were the most hostile. Females who received an apology and did have an opportunity to retaliate were least hostile.

The second part of the hypothesis was that females would respond to attack with more depression than would males. Adjusted posttest depression scores of females were compared with those of male subjects for the attack conditions as well as the apology conditions (Table 5). The three-way analysis of covariance summarized in Table 6 shows that sex of subject (C) was not a significant source of variance for state depression. Female subjects did not express significantly more depression than did male subjects.

Cognitive Task Performance

The fourth hypothesis was that an increase in unexpressed hostility would be accompanied by a decrease in task performance. Subjects in the attack conditions, and especially those in the attack-no retaliation opportunity cell were expected to perform more poorly on a cognitive task than would subjects in the apology conditions. The criterion for this hypothesis was the number of cor-

rectly completed designs within the 10-minute limit. The mean scores are shown in Table 7. A summary of the 2 X 2 X 2 analysis of variance of the experimental condition and sex of subject variables is shown in Table 8. There were no significant effects for the criterion of performance scores. The subjects' performances on this cognitive task were not significantly affected by the attack or opportunity to retaliate variables.

An additional finding, however, was that the variable of sex of subject did affect subjects' predictions of both how well they thought they would do, and then, how well they thought they did after completing the task. Prediction scores ranged from a possible minimum of 1 of "a great deal lower" to a possible maximum of 9, "a great deal higher" than other Loyola students. The mean scores for pre- and postprediction are presented in Tables 9 and 11. The summaries of the analyses of variance are shown in Tables 10 and 12. For both pretask predictions, F (1, 71) = 6.52, $p < .02$, and posttask predictions, F (1, 71) = 8.36, $p < .005$, male subjects thought they would do better with respect to other students than did the female subjects. Actually, there was little correlation between correct performance scores and preprediction scores ($r = .03$) and postprediction scores ($r = .23$).

TABLE 7

Mean Scores for Correct Responses for Cognitive Task

Sex of Subject	Retaliation Possibility	Condition				Total
		Attack		Apology		
Female	Present	M	7.80	M	8.20	16.00
		SD	1.87	SD	1.62	
	Absent	M	8.30	M	7.70	16.00
		SD	.95	SD	1.70	
Male	Present	M	7.70	M	7.67	15.37
		SD	1.83	SD	1.87	
	Absent	M	7.60	M	8.10	15.70
		SD	1.84	SD	1.66	
	Total		31.40		31.67	

Note. N = 10 per cell except in the male-retaliation-apology cell, where N = 9.

TABLE 8

Summary of Analysis of Variance:

Cognitive Task Scores (N = 79)

Source	df	MS	F
Attack/Apology (A)	1	.11	<1
Retaliation opportunity (B)	1	.12	<1
Sex of subject (C)	1	1.05	<1
AB	1	.28	<1
AC	1	.59	<1
BC	1	.12	<1
ABC	1	2.90	1.01
Within cell	71	2.86	

TABLE 9

Mean Prediction of Performance Scores by Subjects before Cognitive Task

Sex of Subject	Retaliation Possibility	Condition				Total
		Attack		Apology		
Female	Present	M	4.90	M	4.60	9.50
		SD	.99	SD	1.08	
	Absent	M	5.50	M	5.30	10.80
		SD	1.18	SD	1.16	
Male	Present	M	5.80	M	5.89	11.69
		SD	1.14	SD	1.36	
	Absent	M	5.60	M	5.70	11.30
		SD	1.27	SD	1.06	
	Total		21.80		21.49	

Note. N = 10 per cell except in the male-retaliation-apology cell, where N = 9.

TABLE 10

Summary of Analysis of Variance:

Predicted Performance before Cognitive Task (N= 79)

Source	df	MS	F
Attack/Apology (A)	1	.16	< 1
Retaliation opportunity (B)	1	1.17	< 1
Sex of subject (C)	1	8.72	6.52*
AB	1	.03	< 1
AC	1	.55	<1
BC	1	3.51	2.63
ABC	1	.01	< 1
Within cell	71	.75	

*p < .02

TABLE 11

Mean Prediction of Performance Scores by Subjects after Cognitive Task

Sex of Subject	Retaliation Possibility	Condition				Total
		Attack		Apology		
Female	Present	M	4.30	M	5.20	9.50
		SD	1.83	SD	1.32	
	Absent	M	5.20	M	4.80	10.00
		SD	1.32	SD	1.40	
Male	Present	M	5.60	M	6.22	11.82
		SD	1.51	SD	1.30	
	Absent	M	5.50	M	6.00	11.50
		SD	1.43	SD	1.49	
	Total		20.60		22.22	

Note. N = 10 per cell except in the male-retaliation-apology cell, where N = 9.

TABLE 12

Summary of Analysis of Variance:

Predicted Performance after Cognitive Task (N= 79)

Source	df	MS	F
Attack/Apology (A)	1	2.98	1.40
Retaliation opportunity (B)	1	.08	<1
Sex of subject (C)	1	17.82	8.36*
AB	1	2.48	1.16
AC	1	.49	<1
BC	1	.87	<1
ABC	1	1.71	<1
Within cell	71	2.13	

*$p < .005$

State Measurements of Depression, Hostility, and Anxiety

A measure of anxiety was added to the current study of depression and hostility to help determine whether the state adjective forms were measuring hostility and depression or merely negative affect, including anxiety. If discrete affects were being measured, then there should be some range to their intercorrelation values.

The intercorrelations of the pretest scores were examined first (Table 13). Intercorrelations between affects were all in the .70s. Intercorrelations for the posttest scores were found to be even higher—in the .80s. There was some range in the intercorrelations for the affect scores when the pretest scores were correlated with the posttest scores of the same affect. Anxiety scores correlated the highest (r = .84), depression was next (r = .75), and then hostility (r = .61).

Since the anxiety scores correlated very highly with the depression and hostility scores, an analysis of covariance for the anxiety scores was done. A test of the homogeneity of within cell regression coefficients showed that the assumption of linear regression was probably correct ($p > .82$ that the cell coefficients were homogeneous.) Table 14 shows the estimated mean scores for posttest anxiety adjusted for the pretest scores. The same three-way analysis of covariance as reported for the depression and hostility scores was performed

TABLE 13

Correlation Matrix of State Measurements

(N = 79)

	Depression		Hostility		Anxiety	
	pre-test	post-test	pre-test	post-test	pre-test	post-test
Depression						
pre-test						
post-test	.75					
Hostility						
pre-test	.74	.54				
post-test	.54	.80	.61			
Anxiety						
pre-test	.78	.70	.71	.60		
post-test	.69	.87	.59	.82	.84	

TABLE 14

Estimated Mean Scores for Posttest State Anxiety (Variate) Adjusted for Pretest State Anxiety (Covariate)

Sex of Subject	Retaliation Possibility	Condition		
		Attack	Apology	Total
Female	Present	37.61	33.71	71.32
	Absent	37.32	36.07	73.39
Male	Present	34.37	33.35	67.72
	Absent	44.94	34.90	79.84
	Total	154.24	138.03	

Note. N = 10 per cell except in the male-retaliation-apology cell, where N = 9. There is no separate standard deviation of each cell because the estimation of means creates only one standard deviation for the whole set of means.

with the anxiety scores (Table 15).

Significant main effects of the attack/apology conditions (A) and retaliation/no retaliation opportunity conditions (B) were again found with the anxiety scores. Attacked subjects, F (1, 70) = 10.25, $p < .01$, as well as subjects without an opportunity to retaliate, F (1, 70) = 7.82, $p < .01$, reported significantly more anxiety. Significant interaction effects were found for the interaction (BC) of retaliation opportunity and sex of subject, F (1, 70) = 4.13, $p < .05$. Males without an opportunity to retaliate were most anxious. Males with an opportunity to retaliate were least anxious.

There was also a significant three-way interaction effect (ABC) for attack/apology, retaliation opportunity, and sex of subject, F (1, 70) = 5.35, $p < .01$. Attacked males without a chance to retaliate were the most anxious. Males and females receiving an apology and a chance to retaliate were least anxious.

Although the correlations between anxiety scores and depression scores, and between anxiety scores and hostility scores were in the .80s, the patterns of significant effects did vary to some degree. Anxiety scores showed a pattern of significant F values which basically included the patterns of significant effects found for both the depression and hostility scores.

TABLE 15

Summary of Analysis of Covariance:

Posttest State Anxiety (Variate) and

Pretest State Anxiety (Covariate) (N = 79)

Source	df	MS	F
Attack/Apology (A)	1	319.33	10.25**
Retaliation opportunity (B)	1	243.43	7.82**
Sex of Subject (C)	1	9.75	< 1
AB	1	50.07	1.61
AC	1	42.96	1.38
BC	1	128.61	4.13*
ABC	1	166.57	5.35*
Within cell	70	31.14	

*$p < .05$

**$p < .01$

CHAPTER V

DISCUSSION

The main purpose of the present experiment was to measure subjects' changes in hostility, depression, and anxiety in response to being attacked and having a chance to retaliate in a situation conducive to a reduction of hostility. As measured by state adjective rating scales, attacked subjects did become more hostile than subjects in the apology conditions. Attacked subjects also utilized the retaliation opportunity to evaluate the experimenter significantly more negatively than did subjects in the apology conditions. Both of these findings replicated results from the previous experiment by the author.

However, in this experiment subjects were sent to a confederate experimenter to complete the experiment rather than completing their forms with the first experimenter as in the first study. This opportunity to get away from the attacking experimenter produced a reduction in negative affect that was not found in the first study. The first hypothesis was that hostility would decrease after being expressed through retaliation against the aggressor. In this replication study, subjects with an opportunity to retaliate were not significantly less

TABLE 19

Correlation Matrix of Trait and State Measurements

($\underline{N}$= 79)

		Depression			Hostility		
		trait	pre-test state	post-test state	trait	pre-test state	post-test state
Depression	trait						
	pre-test state	.68					
	post-test state	.57	.84				
Hostility	trait	.41	.41	.36			
	pre-test state	.66	.86	.76	.49		
	post-test state	.44	.69	.87	.35	.70	

The second part of the third hypothesis was that females would respond to attack with more depression than would males. There was no support for this proposition as female subjects did not express significantly more depression than did male subjects. In the previous study there had been a strong trend for attacked female subjects to become more depressed than attacked male subjects.

The fourth hypothesis was that an increase in unexpressed hostility would be accompanied by a decrease in task performance. There was no support for this hypothesis as the subjects' performances on the mazes were not significantly affected by the attack or opportunity to retaliate variables. Females did predict that they would do less well than did males, though prediction was not significantly associated with performance. Other research has shown that females do not feel they will achieve as well as males achieve (Loevinger, 1962).

Measures of state hostility, depression, and anxiety were found to be highly intercorrelated both before and after the experimental manipulations. All three affects were included in this study to help determine whether negative affect in general or discrete affects were being generated and measured in the experiment. Although the pattern of F values did vary slightly for each of the three affects, the high (r s = .70s and .80s) correlations would seem to indicate that a basic triad (at least) of negative affects was being reported by subjects in the

experiment for both pretest and posttest measurements. The question of whether each of the three affects were fairly equally produced in the experiment, or whether the person could not reliably differentiate or report differing amounts of the three affects cannot be completely answered. The additional anxiety data of the present study would tend to favor the proposition that negative affect *per se* was being manipulated. It must certainly be stated that the attack was an anger and anxiety induction condition.

The pattern of significant *F* values for the anxiety scores indicated that attacked subjects and subjects who did not have an opportunity to retaliate became significantly more anxious than subjects receiving an apology or a chance to retaliate. Attacked males without a chance to retaliate became the most anxious. From the fact that there was a slightly different pattern of significant *F* values for anxiety scores in comparison to depression or hostility scores, it could be argued that some discreteness of each affect was obtained.

Since anxiety had the most significant *F* values for the variables, one conclusion would be that the anxiety measure was somewhat more sensitive to the experimental manipulations than were the hostility or depression measures. With the addition of an anxiety measure, the first expectation of the experiment—that of creating anger in subjects—must be modified. Not only anger but also significant amounts of anxiety were created by the attack. The lack of opportunity for retaliation

produced significantly more amounts of both depression and anxiety in contrast to the conditions which did provide an opportunity to retaliate.

The findings that all the shifts in affect were in the same direction and that the intercorrelations between the three affects were as high as the measures' reliabilities call into serious question the independence of the measures. This criticism is especially applicable to Lubin's Depression Adjective Check Lists which were developed to separate out the Depression Scale from the Hostility and Anxiety Scales of the Multiple Affect Adjective Check List. The manuals for each of the scales do not report an investigation of whether their scales have actually discriminated the three affects on the basis of experimental data. Typically, the manuals reported an experiment where only one of the affects was measured and the conclusion that the experiment was a valid demonstration of the manipulation of that discrete affect. The two experiments by the author suggest that the adjective rating scales for the negative affect triad are not sufficiently discriminating for each affect.

The main finding of the present study in light of the first study was the significant reduction of depression and the trend for the reduction in hostility in subjects with an opportunity to retaliate. It would seem that having the subject leave the experimenter to go to a confederate did provide the subject with a reduction of

depression and, to a lesser extent, hostility. A confounding factor was that the status of the experimenter in the negative evaluation form was lowered from that of a clinical graduate student doing research to that of a student working for a grade in a course in the present study. The subjects in the replication study rated the student experimenter only slightly more negatively than did subjects in the previous study rating the clinical graduate student. The subsequent reduction in negative affect may have thus been more affected by the fact that subjects were sent away from the experimenter.

It is difficult to explain why cognitive performance was not affected by the significant changes in negative affect. One possibility would be that the amount of change in affect level was not enough to effect a change in cognitive performance. Another possibility would be that some subjects may have experienced a facilitation effect in performance whereas others in the same condition may have experienced an inhibition effect as has been found in other research on anxiety and performance scores. To further investigate the connection between the negative affects and performance, it would seem important to include a range of cognitive and perceptual tasks. The finding of the present study is more in line with findings of the depression literature. The research on depression has not revealed a consistent deficit in cognitive performance.

That there were no significant effects for sex of subject on depression is surprising given the repeated findings in the literature that females report more depression than males. Perhaps the norms for depression are in the process of changing, with males becoming more willing or able to report more depression than they did previously. It is difficult to see what effect the female sex of the experimenter had on the variable of sex of subject's effect on reported negative affect. Further studies controlling for sex of experimenter would appear necessary to ascertain the dynamics at work here.

Support for the inhibited aggression theory of depression was found in that subjects who had a chance to retaliate against the experimenter were significantly less depressed than those who were not given the opportunity. There was only a trend however, for those who had a chance to retaliate to then report less hostility than those who did not have an opportunity to retaliate. Thus, subjects tended to become more depressed, but not necessarily more hostile when not given an opportunity to retaliate.

SUMMARY

Seventy-nine subjects completed state measures of depression, hostility, and anxiety both before and after they received either a verbal attack or an apology. All subjects were sent to a confederate experimenter to fill out the posttest measures which included an opportunity for half of the subjects to evaluate the experimenter. All subjects then completed a cognitive task consisting of nine maze designs.

Statistically significant results showed that attacked subjects became more hostile and anxious than did subjects receiving an apology. Subjects who received an opportunity to retaliate against the experimenter became significantly less depressed and less anxious than subjects who did not receive an opportunity to retaliate. Attacked male subjects who did not have an opportunity to retaliate tended to become the most hostile. Female subjects who received an apology and an opportunity to retaliate tended to become the least hostile. Other results found that females did not become significantly more depressed than males as had been hypothesized. Cognitive performance on a maze task was unrelated to changes in negative affect.

The state adjective rating measures of depression,

hostility, and anxiety were highly intercorrelated both before and after the experimental manipulations. One methodological problem was whether the three affects were being measured separately. In general, the data for state hostility and depression in response to attack and opportunity for retaliation was consistent with the inhibition of aggression theory of depression.

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APPENDIX A

AFFECT RATING SCALE - FORM A

DIRECTIONS: We are validating some scales which hopefully will allow people to describe the different complex moods they feel at times. Please read each statement below and circle the number which best reflects the intensity of the feeling you have right now, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel afflicted.	1	2	3	4
2. I feel agreeable.	1	2	3	4
3. I feel amiable.	1	2	3	4
4. I feel angry at others.	1	2	3	4
5. I feel anxious.	1	2	3	4
6. I feel bitter.	1	2	3	4
7. I feel blissful.	1	2	3	4
8. I feel broken-hearted.	1	2	3	4
9. I am calm.	1	2	3	4
10. I feel comfortable.	1	2	3	4
11. I am content.	1	2	3	4
12. I feel contemptuous of others.	1	2	3	4
13. I feel cooperative.	1	2	3	4
14. I feel criticized.	1	2	3	4
15. I am delighted about others.	1	2	3	4
16. I feel disagreeable.	1	2	3	4
17. I feel destroyed.	1	2	3	4
18. I feel distainful toward others.	1	2	3	4
19. I feel others are distasteful.	1	2	3	4
20. I feel disgusted.	1	2	3	4
21. I feel dreamy.	1	2	3	4
22. I feel dull.	1	2	3	4
23. I feel at ease.	1	2	3	4
24. I feel enraged.	1	2	3	4
25. I feel enthusiastic.	1	2	3	4
26. I feel fine.	1	2	3	4
27. I feel friendly.	1	2	3	4
28. I feel furious.	1	2	3	4
29. I feel good-natured.	1	2	3	4
30. I feel "high-strung."	1	2	3	4
31. I feel interested in others.	1	2	3	4
32. I feel happy.	1	2	3	4
33. I feel irritated.	1	2	3	4
34. I am jittery.	1	2	3	4
35. I feel joyful.	1	2	3	4
36. I feel kindly.	1	2	3	4

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	Not at all	Somewhat	Moderately so	Very much so
37. I feel listless. . .	1	2	3	4
38. I feel low-spirited. .	1	2	3	4
39. I feel mad at others.	1	2	3	4
40. I feel mean.	1	2	3	4
41. I feel miserable. . .	1	2	3	4
42. I feel nervous. . . .	1	2	3	4
43. I feel offended. . .	1	2	3	4
44. I feel oppressed. . .	1	2	3	4
45. I feel over-excited.	1	2	3	4
46. I feel pleasant. . .	1	2	3	4
47. I feel polite. . . .	1	2	3	4
48. I feel regretful. .	1	2	3	4
49. I am relaxed. . . .	1	2	3	4
50. I feel rested. . . .	1	2	3	4
51. I feel revulsion toward others. . . .	1	2	3	4

	Not at all	Somewhat	Moderately so	Very much so
52. I feel sad.	1	2	3	4
53. I feel safe.	1	2	3	4
54. I feel secure.	1	2	3	4
55. I feel self-confident.	1	2	3	4
56. I feel strong.	1	2	3	4
57. I feel sympathetic. . .	1	2	3	4
58. I feel tender.	1	2	3	4
59. I am tense.	1	2	3	4
60. I feel understanding. .	1	2	3	4
61. I feel unsociable. . .	1	2	3	4
62. I feel unwanted. . . .	1	2	3	4
63. I feel upset.	1	2	3	4
64. I feel weary.	1	2	3	4
65. I feel wilted.	1	2	3	4
66. I am worried.	1	2	3	4

AFFECT RATING SCALE - FORM B

DIRECTIONS: We are validating some scales which hopefully will allow people to describe the different complex moods they feel at times. Please read each statement below and circle the number which best reflects the intensity of the feeling you have right now, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel calm.	1	2	3	4
2. I feel kindly.	1	2	3	4
3. I feel downhearted.	1	2	3	4
4. I feel lively.	1	2	3	4
5. I feel secure.	1	2	3	4
6. I feel cooperative.	1	2	3	4
7. I feel unfeeling.	1	2	3	4
8. I feel angry at others.	1	2	3	4
9. I am tense.	1	2	3	4
10. I feel tender.	1	2	3	4
11. I feel unhappy.	1	2	3	4
12. I feel regretful.	1	2	3	4
13. I feel blissful.	1	2	3	4
14. I feel at ease.	1	2	3	4
15. I feel alive.	1	2	3	4
16. I feel agreeable.	1	2	3	4
17. I feel revulsion toward others.	1	2	3	4
18. I feel upset.	1	2	3	4
19. I feel terrible.	1	2	3	4
20. I feel polite.	1	2	3	4
21. I feel rested.	1	2	3	4
22. I am delighted about others.	1	2	3	4
23. I feel anxious.	1	2	3	4
24. I feel forlorn.	1	2	3	4
25. I feel alert.	1	2	3	4
26. I feel contemptuous of others.	1	2	3	4
27. I feel comfortable.	1	2	3	4
28. I feel understanding.	1	2	3	4
29. I feel self-confident.	1	2	3	4
30. I feel exhausted.	1	2	3	4
31. I feel nervous.	1	2	3	4
32. I feel amiable.	1	2	3	4
33. I feel distainful toward others.	1	2	3	4
34. I am jittery.	1	2	3	4
35. I feel bright.	1	2	3	4

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	Very much so	Moderately so	Somewhat	Not at all
36. I feel irritated. . .	1	2	3	4
37. I feel "high-strung."	1	2	3	4
38. I feel desolate. . .	1	2	3	4
39. I feel bitter. . . .	1	2	3	4
40. I feel good-natured.	1	2	3	4
41. I am relaxed.	1	2	3	4
42. I feel others are distasteful.	1	2	3	4
43. I feel clean.	1	2	3	4
44. I feel sympathetic. .	1	2	3	4
45. I feel content. . . .	1	2	3	4
46. I feel worried. . . .	1	2	3	4
47. I feel happy.	1	2	3	4
48. I feel unsociable. .	1	2	3	4
49. I feel moody.	1	2	3	4
50. I feel friendly. . .	1	2	3	4

	Very much so	Moderately so	Somewhat	Not at all
51. I feel dead.	1	2	3	4
52. I feel disagreeable. . .	1	2	3	4
53. I feel offended.	1	2	3	4
54. I feel joyful.	1	2	3	4
55. I feel enraged.	1	2	3	4
56. I feel bleak.	1	2	3	4
57. I feel pleasant.	1	2	3	4
58. I feel mad at others. . .	1	2	3	4
59. I feel morbid.	1	2	3	4
60. I feel disgusted.	1	2	3	4
61. I feel easy-going. . . .	1	2	3	4
62. I feel mean.	1	2	3	4
63. I feel melancholy. . . .	1	2	3	4
64. I feel mashed.	1	2	3	4
65. I feel furious	1	2	3	4

AFFECT RATING SCALE - FORM E

DIRECTIONS: We are validating some scales which hopefully will allow people to describe the different complex moods they feel at times. Please read each statement below and circle the number which best reflects the intensity of the feeling you have right now, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel agreeable. . .	1	2	3	4
2. I feel amiable. . . .	1	2	3	4
3. I feel angry at others.	1	2	3	4
4. I feel anxious. . . .	1	2	3	4
5. I feel apathetic. . .	1	2	3	4
6. I feel awful.	1	2	3	4
7. I feel bitter.	1	2	3	4
8. I feel blissful. . . .	1	2	3	4
9. I feel blue.	1	2	3	4
10. I am calm.	1	2	3	4
11. I feel comfortable. .	1	2	3	4
12. I feel composed. . . .	1	2	3	4
13. I am content.	1	2	3	4
14. I feel contemptuous of others.	1	2	3	4
15. I feel cooperative. .	1	2	3	4
16. I am delighted about others.	1	2	3	4
17. I feel disagreeable. .	1	2	3	4
18. I feel dispirited. . .	1	2	3	4
19. I feel distainful toward others.	1	2	3	4
20. I feel others are distasteful.	1	2	3	4
21. I feel disgusted. . .	1	2	3	4
22. I feel distressed. . .	1	2	3	4
23. I feel enraged. . . .	1	2	3	4
24. I feel at ease. . . .	1	2	3	4
25. I feel friendly. . . .	1	2	3	4
26. I feel forlorn. . . .	1	2	3	4
27. I feel free.	1	2	3	4
28. I feel glum.	1	2	3	4
29. I feel furious. . . .	1	2	3	4
30. I feel good-natured. .	1	2	3	4
31. I feel great.	1	2	3	4
32. I feel "high-strung."	1	2	3	4
33. I feel hopeless. . . .	1	2	3	4
34. I feel happy.	1	2	3	4
35. I feel irritated. . .	1	2	3	4
36. I am jittery.	1	2	3	4

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	Very much so	Moderately so	Somewhat	Not at all
37. I feel joyful.	1	2	3	4
38. I feel kindly.	1	2	3	4
39. I feel lonely.	1	2	3	4
40. I feel lost.	1	2	3	4
41. I feel mad at others.	1	2	3	4
42. I feel lucky.	1	2	3	4
43. I feel mean.	1	2	3	4
44. I feel nervous.	1	2	3	4
45. I feel offended.	1	2	3	4
46. I feel over-excited.	1	2	3	4
47. I feel peaceful.	1	2	3	4
48. I feel polite.	1	2	3	4
49. I feel pleasant.	1	2	3	4
50. I feel regretful.	1	2	3	4
51. I am relaxed.	1	2	3	4
52. I feel rested.	1	2	3	4
53. I feel revulsion toward others.	1	2	3	4
54. I feel secure.	1	2	3	4
55. I feel self-confident.	1	2	3	4
56. I feel strong.	1	2	3	4
57. I feel sympathetic.	1	2	3	4
58. I feel tender.	1	2	3	4
59. I am tense.	1	2	3	4
60. I feel tortured.	1	2	3	4
61. I feel understanding.	1	2	3	4
62. I feel unsociable.	1	2	3	4
63. I feel upset.	1	2	3	4
64. I feel wilted.	1	2	3	4
65. I am worried.	1	2	3	4

AFFECT RATING SCALE - FORM F

DIRECTIONS: We are validating some scales which hopefully will allow people to describe the different complex moods they feel at times. Please read each statement below and circle the number which best reflects the intensity of the feeling you have right now, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel calm.	1	2	3	4
2. I feel sorrowful.	1	2	3	4
3. I feel disgusted.	1	2	3	4
4. I feel secure.	1	2	3	4
5. I feel uneasy.	1	2	3	4
6. I feel agreeable.	1	2	3	4
7. I feel angry at others.	1	2	3	4
8. I feel tense.	1	2	3	4
9. I feel unsociable.	1	2	3	4
10. I feel regretful.	1	2	3	4
11. I feel mad at others.	1	2	3	4
12. I feel blissful.	1	2	3	4
13. I feel tormented.	1	2	3	4
14. I feel amiable.	1	2	3	4
15. I feel low-spirited.	1	2	3	4
16. I feel contemptuous of others.	1	2	3	4
17. I am delighted about others.	1	2	3	4
18. I feel discouraged.	1	2	3	4
19. I feel polite.	1	2	3	4
20. I feel friendly.	1	2	3	4
21. I feel broken-hearted.	1	2	3	4
22. I feel good-natured.	1	2	3	4
23. I feel others are distasteful.	1	2	3	4
24. I feel washed out.	1	2	3	4
25. I feel playful.	1	2	3	4
26. I feel tender.	1	2	3	4
27. I feel low.	1	2	3	4
28. I feel mean.	1	2	3	4
29. I feel happy.	1	2	3	4
30. I feel bitter.	1	2	3	4
31. I feel rejected.	1	2	3	4
32. I feel understanding.	1	2	3	4
33. I feel friendly.	1	2	3	4
34. I feel successful.	1	2	3	4
35. I feel distainful of others.	1	2	3	4
36. I feel at ease.	1	2	3	4

Page Two

	Not at all	Somewhat	Moderately so	Very much so
37. I feel upset.	1	2	3	4
38. I feel disagreeable.	1	2	3	4
39. I feel jolly.	1	2	3	4
40. I feel cooperative.	1	2	3	4
41. I feel kindly.	1	2	3	4
42. I feel grieved.	1	2	3	4
43. I feel furious.	1	2	3	4
44. I feel sympathetic.	1	2	3	4
45. I feel low.	1	2	3	4
46. I feel steady.	1	2	3	4
47. I feel mad at others.	1	2	3	4
48. I feel rested.	1	2	3	4
49. I feel anxious.	1	2	3	4
50. I feel terrible.	1	2	3	4
51. I feel comfortable.	1	2	3	4
52. I feel woeful.	1	2	3	4
53. I feel self-confident.	1	2	3	4
54. I feel irritated.	1	2	3	4
55. I feel joyous.	1	2	3	4
56. I feel nervous.	1	2	3	4
57. I feel enraged.	1	2	3	4
58. I am jittery.	1	2	3	4
59. I feel offended.	1	2	3	4
60. I feel "high strung".	1	2	3	4
61. I am relaxed.	1	2	3	4
62. I feel revulsion toward others.	1	2	3	4
63. I feel content.	1	2	3	4
64. I am worried.	1	2	3	4
65. I am outraged.	1	2	3	4
66. I feel somber.	1	2	3	4

PERSONALITY INVENTORY

DIRECTIONS: Here are some questions regarding the way you behave, feel and act. After each question there is a place for answering "yes," or "No." Try and decide whether "Yes," or "No" represents your usual way of acting or feeling. Then circle "Yes" or "No" in the column to the right. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave.

1. Do you often long for excitement? . . . . . Yes No
2. Are you usually carefree? . . . . . Yes No
3. Do you ever feel "just miserable" for no good reason? . Yes No
4. Do you often do things on the spur of the moment? . . . Yes No
5. Generally do you prefer reading to meeting people? . . Yes No
6. Do you like going out a lot? . . . . . Yes No
7. Are you sometimes bubbling over with energy and sometimes very sluggish? . . . . . Yes No
8. Do you prefer to have few but special friends? . . . . Yes No
9. Do you daydream a lot? .. . . . . Yes No
10. Do you sometimes gossip? . . . . . Yes No
11. Do ideas run through your head so that you cannot sleep? . . . . . Yes No
12. If there is something you want to know about, would you rather look it up in a book than talk to someone about it? . . . . . Yes No
13. Do you like the kind of work that you need to pay close attention to? . . . . . Yes No
14. Are you slow and unhurried in the way you move? . . . . Yes No
15. Do you have many nightmares? . . . . . Yes No
16. Would you be very unhappy if you could not see lots of people most of the time? . . . . . Yes No
17. Would you say you were fairly self-confident? . . . . Yes No
18. Do you sometimes talk about things you know nothing about? . . . . . Yes No

DESCRIPTIVE MOOD FORM

DIRECTIONS: Place an "X" along the continuum for each pair of adjectives to indicate how you feel RIGHT NOW.

unhappy ——————————————— happy

energetic ——————————————— tired

miserable ——————————————— pleasant

full ——————————————— hungry

angry ——————————————— indifferent

relaxed ——————————————— tense

sad ——————————————— cheerful

cold ——————————————— hot

flexible ——————————————— firm

EXPERIMENTER EVALUATION FORM

LOYOLA UNIVERSITY OF CHICAGO

DEPARTMENT OF PSYCHOLOGY

The Psychology Department is interested in knowing how you as a research subject evaluate your experimenter. Some of the experimenters are conducting research projects as a part of their requirement for one of their courses. It is important for the professors to get some feedback from people who have had some contact with the student experimenter to help determine his or her grade at the end of the term. Please evaluate your experimenter along the following dimensions. A summary of this information will be given to the experimenter's professor. When you have finished filling out this sheet, seal it in the attached envelope. The experimenter is required to hand the envelope unopened to the department secretary.

Did you find your experimenter for _____ to be:
(name of experiment)

Place an "X" along the line.

very incompetent ——————————— very competent

very discourteous ——————————— very courteous

very untrustworthy ——————————— very trustworthy

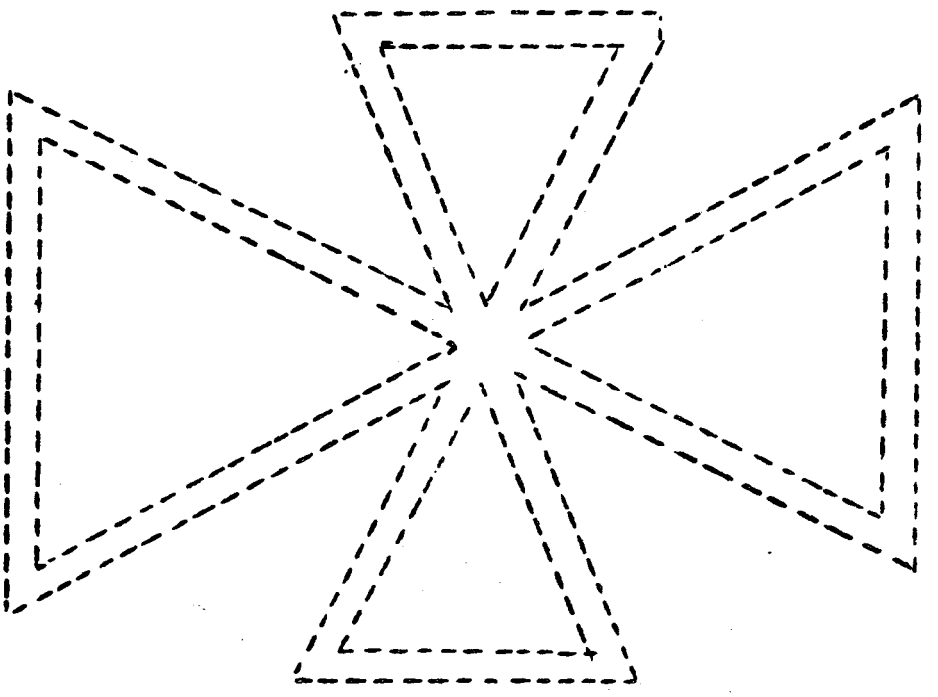
very insensitive ——————————— very sensitive

very inefficient ——————————— very efficient

Be sure to seal this sheet in the attached envelope.
Thank you.

APPENDIX B

MAZES



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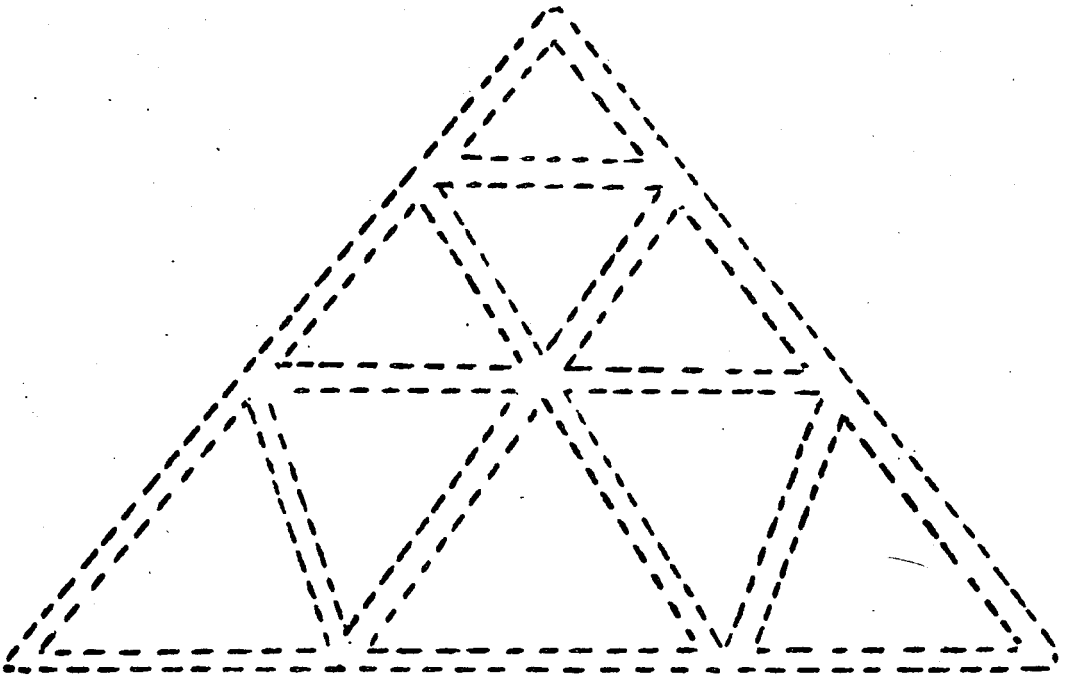

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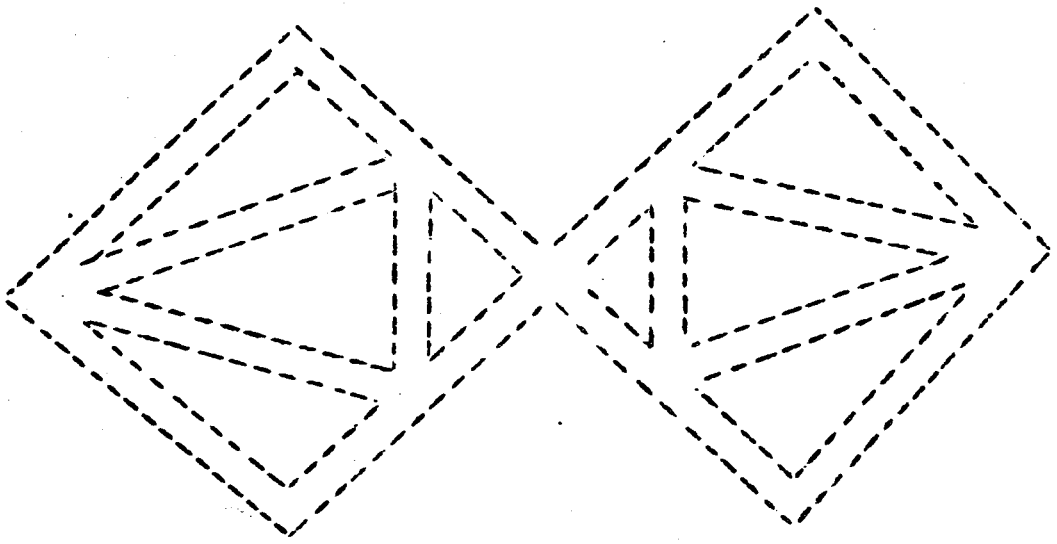
MAZES



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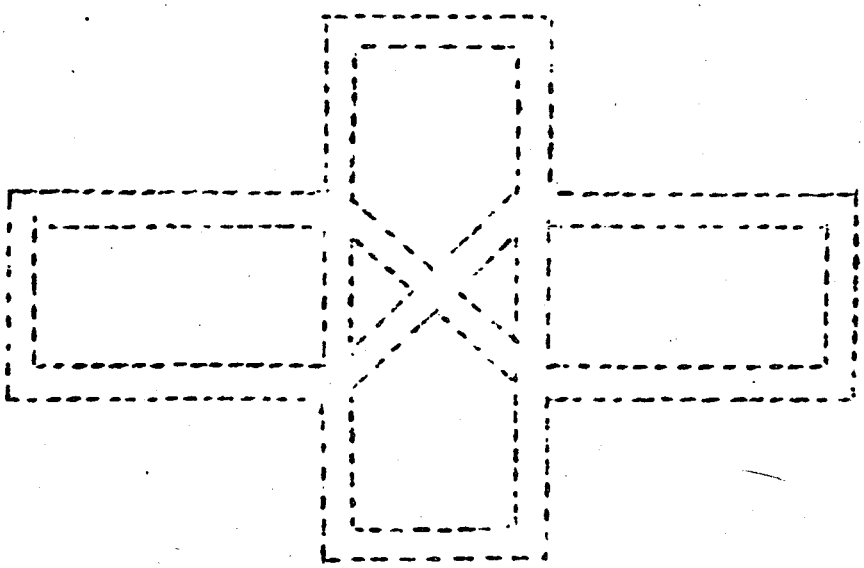

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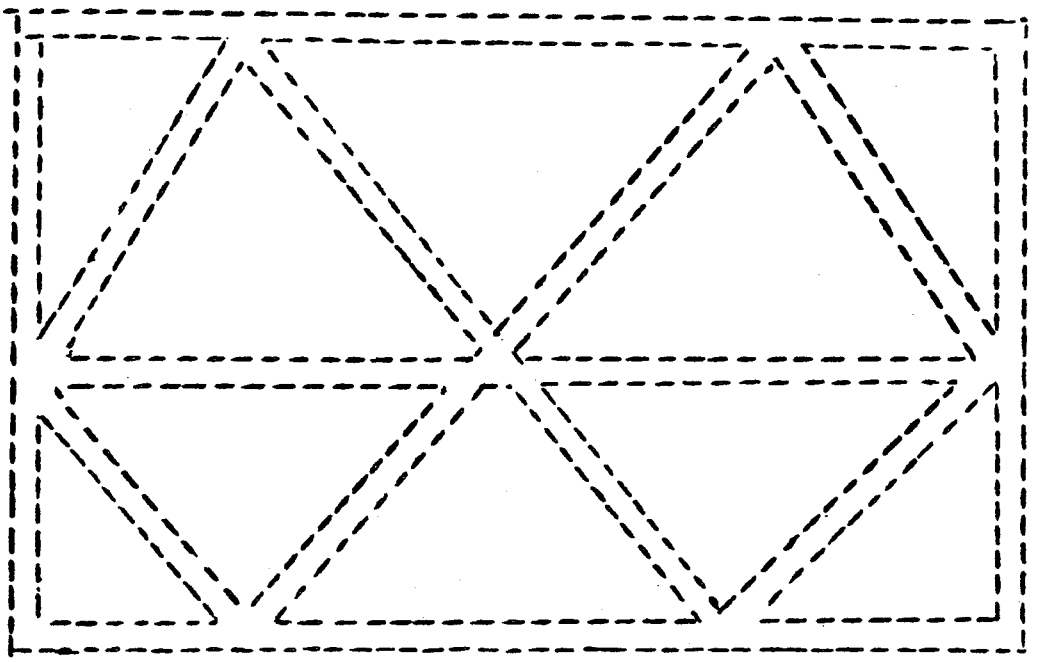

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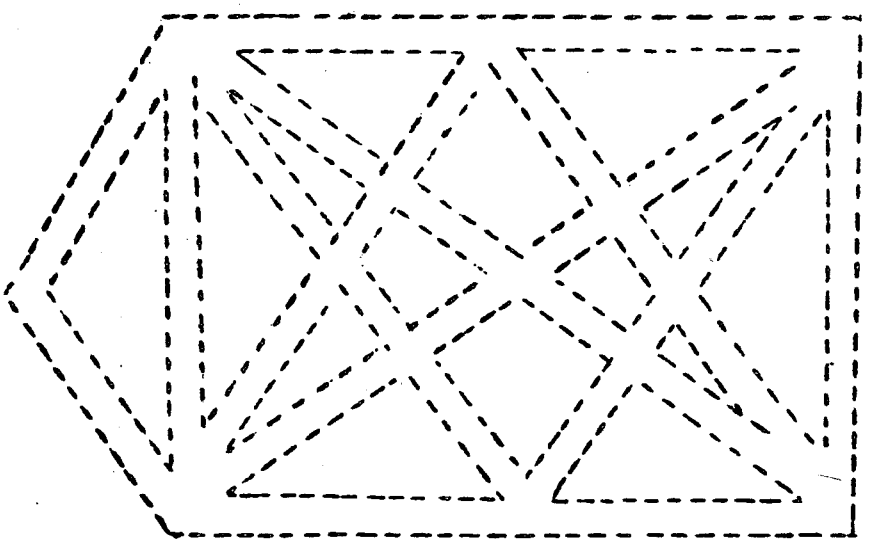

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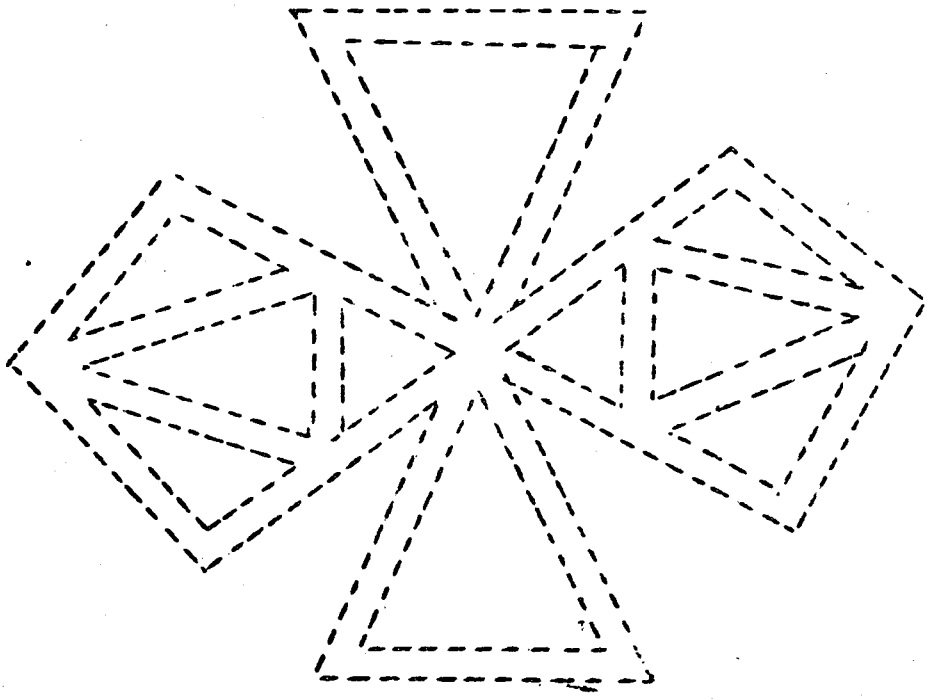
MAZES



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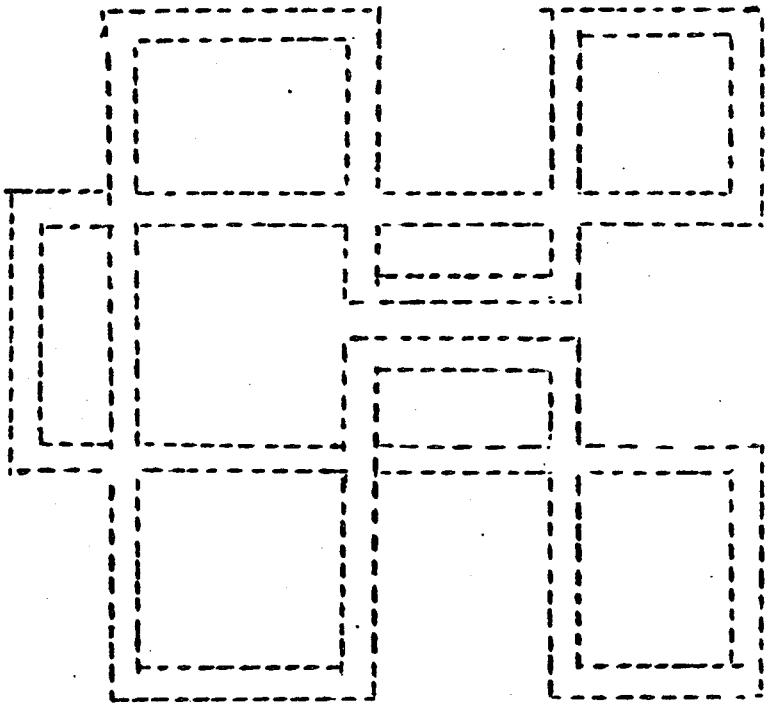

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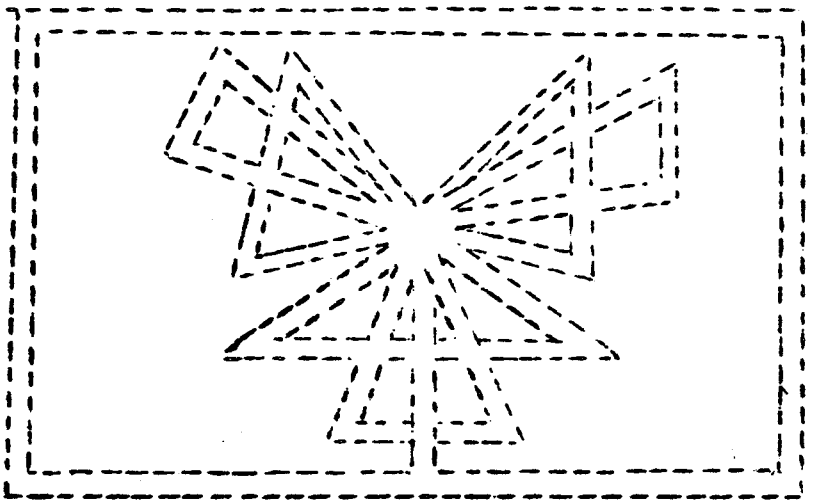
MAZES



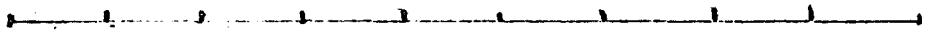
#9

observations:

	1	2	3	4	5	6	7	8	9	total
# errors										
time										
# error										

* * * *

Now that you've taken this test, how well would you guess that you did in comparison with other subjects from Loyola? Place an "X" along this line:



a great deal lower | about the same | a great deal higher

APPENDIX C

CONDITIONS A & B:

Did you have any questions or feelings about this experiment?_____

_____

_____

_____

CONDITION EXPLANATION:

By random assignment you were placed in the attack group which I then arbitrarily verbally attacked. The reason that I treated you in this way way to make you angry. I needed to make you angry to see how your feelings would change. Anger, as you may know, is an important affect, especially to the dynamics of depression. Do you understand what I was trying to do?

_____

_____

Depression is probably the most common, painful emotional condition in our society. However, the dynamics of depression are not well understood. I hope that this research will help clarify a basic dynamic. I'm sorry that I had to keep you waiting and then blame you. I considered other ways to make subjects angry, and this was the least harmful, yet effective way that I could use.

You also completed a cognitive task to see if your performance would be affected by your feelings. (For Condition B): The Experimenter Evaluation Form was used to measure your evaluation of me as an attacking experimenter.

Its crucial that you don't tell anyone about this experiment. If you tell people about the manipulation, the research results will not be valid and our effort will be wasted. If you are interested in the results of this study, contact me at the end of the term, and I'll be glad to give you a reprint of my findings.

CONDITIONS C & D:

Did you have any questions or feelings about this experiment?_____

_____

_____

_____

CONDITION EXPLANATION:

By random assignment you were placed in the delay group which I then had to detain for several minutes. The reason that I treated you in this way, and then apologized to you, was to study how your feelings changed. I needed to know how a frustrating but nonpersonal delay related to your anger. Anger, as you may know, is an important affect, especially to the dynamics of depression. Do you understand what I was trying to do?

_____

Depression is probably the most common, painful emotional condition in our society. However, the dynamics of depression are not well understood. I hope that this research will help clarify a basic dynamic. I'm sorry that I had to keep you waiting. I considered other ways to frustrate subjects, and this was the least harmful, yet effective way that I could use.

You also completed a cognitive task to see if your performance would be affected by your feelings. (For condition D): The Experimenter Evaluation Form was used to measure your evaluation of me as an inefficient experimenter.

It's crucial that you don't tell anyone about this experiment. If you tell people about the manipulation, the research results will not be valid and our effort will be wasted. If you are interested in the results of this study, contact me at the end of the term, and I'll be glad to give you a reprint of my findings.

APPROVAL SHEET

The dissertation submitted by Carolyn J Atkinson has been read and approved by the following committee:

Dr. Jeanne M. Foley, Director
Professor, Psychology, Loyola

Dr. Janet Polivy
Assistent Professor, Psychology, Loyola

Dr. Thomas P. Petzel
Professor, Psychology, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May 18, 1976 — Jeanne M. Foley

Date — Director's Signature